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Patent Application

Appellant (s):	**Mark Dilman et al.**
Serial No.:	**09/813,415**
Examiner:	**Bilgrami, Asghar H.**
Filed:	**March 21, 2001** Group Art Unit: **2143**
Confirmation #:	**2405** Case: **1-6**
Title:	**METHOD AND APPARATUS FOR EFFICIENT REACTIVE MONITORING**

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APPEAL BRIEF

Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2143 mailed July 16, 2008 finally rejecting claims 1, 6-12 and 14.

In the event that an extension of time is required for this appeal brief to be considered timely, and a petition therefor does not otherwise accompany this appeal brief, any necessary extension of time is hereby petitioned for.

Appellants believe that the only fee due is the difference between the appeal brief fee previously paid **($510)** and the current appeal brief fee **($540)**. The Commissioner is authorized to charge such fee **($30)** and any other fees due to make this filing timely and complete (including extension of time fees) to Deposit Account No. 20-0782/**LCNT/DILMAN1**.

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Real Party in Interest

The real party in interest is LUCENT TECHNOLOGIES INC.

Related Appeals and Interferences

Appellants assert that no appeals or interferences are known to Appellants, Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1, 6-12 and 14 are pending in the application. Claims 1-12 were originally presented in the application. Claims 13 and 14 were added by amendment. Claims 2-5 and 13 were cancelled. Claims 1, 6-12 and 14 were amended. Claims 1, 6-12 and 14 stand finally rejected as discussed below. The final rejection of claims 1, 6-12 and 14 is appealed.

Status of Amendments

All claim amendments have been entered.

Summary of Claimed Subject Matter

Embodiments of the present invention are generally directed to monitoring of network elements by a management station. More specifically, the present invention includes embodiments providing techniques enabling a management station to manage network elements in a manner that significantly reduces the amount of monitoring related traffic that is transmitted between the network elements and the management station. In some embodiments, a rate of change of usage of a resource is monitored for determining reporting by network elements to the management station.

An exemplary embodiment of a method for monitoring usage of resources allocated to a plurality of nodes of a network includes the steps of assigning a parameter to each of a plurality of nodes of the network where each parameter is indicative of a rate of change of usage of said resources of the node, locally monitoring at each of the nodes the rate of change of the usage of the resources of the node, reporting to a centralized management station of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold, initiating a poll of resources of nodes of the network by the centralized management station in response to reporting from the node or a time interval being exceeded, determining whether a sum of the currently reported rates of change of usage of node resources, received in response to the poll initiated by the management station, exceeds a second threshold, and generating an alarm if the sum of the currently reported rates of change of usage of node resources exceeds the second threshold, else updating the time interval. This embodiment is claimed in Appellants' independent claim 1. Other embodiments are claimed in Appellants' other independent claims.

For the convenience of the Board of Patent Appeals and Interferences, Appellants' independent claims 1, 7, 8, 9, and 10 are presented below with citations to various figures and appropriate citations to at least one portion of the specification for elements of the appealed claims.

Claim 1 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

1. (previously presented) A method for monitoring usage of resources allocated to a plurality of nodes (130-132, 150-152) of a network (100), comprising the steps of:

assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node; (Pg. 6, Lines 8 – 16; Pg. 7, Lines 21-25)

locally monitoring (403), at each of the nodes, the rate of change of the usage of said resources of the node; (Pg. 9, Lines 10-15)

reporting (405) to a centralized management station (160) of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold; (Pg. 9, Lines 10-15)

initiating (505, 507) a poll of resources of nodes of the network by the centralized management station in response to reporting from the node or a time interval being exceeded; (Pg. 9, Lines 18-20, Lines 27-30)

determining (509) whether a sum of the currently reported rates of change of usage of node resources, received in response to the poll initiated by the management station (160), exceeds a second threshold; and (Pg. 9, Lines 21-22)

generating (509, 513) an alarm if the sum of the currently reported rates of change of usage of node resources exceeds the second threshold, else updating (511) the time interval. (Pg. 9, Lines 22-26)

Claim 7 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

7. (previously presented) A method for monitoring usage of a resource in nodes (130-132, 150-152) of a network (100), comprising the steps of:

(a) monitoring (403) usage of the resource in a node to determine when a rate of change of the usage exceeds a first predetermined threshold; (Pg. 9, Lines 10-15)

(b) reporting (405) to a management station of the network when the rate of

change of the usage exceeds said first predetermined threshold; and (Pg. 9, Lines 10-15)

(c) initiating (505, 507) a poll of resources in the nodes of the network by the management station in response to reporting from the node or a time interval being exceeded. (Pg. 9, Lines 18-20, Lines 27-30)

Claim 8 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

8. (previously presented) A method for monitoring usage of resources in nodes (130-132, 150-152) of a network (100), comprising the steps of:

asynchronous reporting (405) of an event to a management station of the network when a rate of change of a usage of at least one resource of said resources in any of said nodes deviates from a prescribed norm; and (Pg. 9, Lines 10-15)

periodic polling (505, 507) of said nodes in accordance with a polling interval, and aperiodic polling (505, 507) of said nodes in response to reporting of said event, wherein a tunable parameter is adjusted in response to the usage. (Pg. 9, Lines 18-20, Lines 27-30)

Claim 9 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

9. (previously presented) A method for managing a global resource of a network (100) in order to reduce the amount of monitoring related traffic, comprising the steps of:

assigning (703) a local threshold to each of a plurality of node resources of a respective plurality of nodes of the network; (Pg. 6, Lines 8 – 16; Pg. 7, Lines 21-25)

reporting (703, 705) to a management station (160) of the network when a value indicative of node resource usage exceeds the assigned local threshold as determined using local monitoring of the node resource; (Pg. 10, Line 27 – Pg. 11, Line 7)

initiating (805, 807) a poll, by the management station (160), of node resource usage by the nodes of the network in response to a determination that a sum of previously

reported values indicative of node resource usage received from reporting nodes plus an upper bound of node resource usage for non-reporting nodes exceeds a threshold; and (Pg. 11, Lines 8 – 21)

generating (809, 811) an alarm if the sum of the currently reported values indicative of node resource usage, received in response to the poll initiated by the management station, exceeds the threshold. (Pg. 11, Lines 19-21)

Claim 10 positively recites (with reference numerals, where applicable and cites to at least one portion of the specification added):

10. (previously presented) A method for managing a global resource of a network (100) in order to reduce the amount of monitoring related traffic, comprising the steps of:

assigning a local threshold to each of a plurality of node resources of a respective plurality of nodes (130-132, 150-152) of the network (100); (Pg. 6, Lines 8 – 16; Pg. 7, Lines 21-25)

reporting (609, 611) to a management station (160) of the network when a rate of change of usage of said node resource exceeds the local threshold as determined using local monitoring of the node resource, wherein said rate of change of usage of said node resource is determined using a variable time interval comprising a difference between a current time and a time at which the node was last polled by the management station; (Pg. 10, Lines 3-26)

initiating (505, 507) a poll, by the management station (160), of the node resource usage of the nodes of the network in response to receiving reporting from one of the nodes or a time interval being exceeded; (Pg. 9, Lines 18-20, Lines 27-30)

determining (509) whether a sum of the currently reported rates of change of usage of node resources, received in response to the poll initiated by the management station, exceeds a threshold; and (Pg. 9, Lines 21-22)

generating (509, 513) an alarm if the sum of the currently reported rates of change of usage of node resources exceeds the threshold. (Pg. 9, Lines 22-26)

Grounds of Rejection to be Reviewed on Appeal

The Examiner has rejected claims 1, 6, 9 and 10 under 35 U.S.C. §103(a) as being unpatentable over Boukobza et al. (U.S. Patent No. 6,122,664, hereinafter "Boukobza") and Robinson et al. (U.S. Patent No. 6,570,867, hereinafter "Robinson").

Claims 7, 8, 11, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al. (U.S. Patent No. 6,857,025, hereinafter "Maruyama") and Robinson.

Arguments

Rejections Under 35 U.S.C. §103

Claims 1, 6, 9, and 10

Claims 1 and 6

The Examiner has rejected claims 1 and 6 under 35 U.S.C. §103(a) as being unpatentable over Boukobza and Robinson. Appellants respectfully traverse the rejection.

The Examiner bears the initial burden of establishing a prima facie case of obviousness. See MPEP § 2141. Establishing a prima facie case of obviousness begins with first resolving the factual inquiries of Graham v. John Deere Co. 383 U.S. 1 (1966). The factual inquiries are as follows:

(A) determining the scope and content of the prior art;

(B) ascertaining the differences between the claimed invention and the prior art;

(C) resolving the level of ordinary skill in the art; and

(D) considering any objective indicia of nonobviousness.

Once the Graham factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art. The key to supporting a rejection under 35 U.S.C. §103 is the clear articulation of the reasons why the claimed invention would have been obvious. The analysis supporting such a rejection must be explicit. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006), cited with approval in KSR Int'l Co. v. Teleflex, Inc., 126 S. Ct. 2965 (2006); see also MPEP §2141.

The Final Office Action failed to establish a *prima facie* case of obviousness, because the combination of Boukobza and Robinson fails to teach or suggest all of the limitations of Appellants' claim 1. The combination of Boukobza and Robinson fails to

teach or suggest at least the feature of a rate of change of usage of a resource and, thus, fails to teach or suggest at least the limitations of "assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node," "locally monitoring, at each of the nodes, the rate of change of the usage of said resources of the node," and "reporting to a centralized management station of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold," as claimed in Appellants' claim 1.

Boukobza discloses a process for monitoring a plurality of object types of a plurality of nodes including a management node in an information system. As disclosed in Boukobza, monitoring is configured and then distributed in a filtered way from the management node to autonomous agents installed in each of the nodes to be monitored in order either to locally process the different object types or all of the objects of a domain called a global object, or to feed back information to be displayed in a graphical interface of the management node. Boukobza further discloses that each agent includes a plurality of modules specific to the different object types or to a particular domain, and that each module measures static and dynamic parameters particular to the object type it monitors and collects the measurements. (Boukobza, Abstract).

Boukobza, however, fails to teach or suggest at least the feature of monitoring a rate of change of usage of a resource and, thus, fails to teach or suggest at least the limitations of "assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node," "locally monitoring, at each of the nodes, the rate of change of the usage of said resources of the node," and "reporting to a centralized management station of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold," as claimed in Appellants' claim 1.

Rather, Boukobza merely states that a module on a node that is being monitored measures both static parameters and dynamic parameters particular to an object that the module monitors. In other words, Boukobza merely includes general statements indicating that a node being monitored measures dynamic parameters. A general statement that a node being monitored measures dynamic parameters, as taught in Boukobza, does not teach or suggest the specific limitation of a rate of change of the

usage of the resources of a node, as claimed in Appellants' claim 1. Boukobza is devoid of any teaching or suggestion of monitoring a rate of change of usage of a resource, as claimed in Appellants' claim 1.

In the Final Office Action dated July 16, 2008, the Examiner cited specific portions of Boukobza (namely, Col. 1, Lines 33-35 and Col. 2, Lines 21-55), asserting that the cited portions of Boukobza disclose Appellants' limitations of "assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node," "locally monitoring, at each of the nodes, the rate of change of the usage of said resources of the node," and "reporting to a centralized management station of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold," as claimed in Appellants' claim 1. (see Final Office Action, Pg. 2). Appellants respectfully disagree.

The cited portions of Boukobza fail to teach or suggest a rate of change of usage of a resource or monitoring a rate of change of usage of a resource. Rather, the cited portions of Boukobza merely describe generic parameters that may be measured or tested relative to predefined thresholds.

The first portion of Boukobza cited by the Examiner states that "[a] managed object, in this data processing environment, is a representation of a resource such as a machine, a file, a peripheral, a user, an application, etc." (Boukobza, Col. 1, Lines 33 – 35). In other words, this first portion of Boukobza merely indicates that a managed object in a Management Information Base (MIB) may be used to represent different types of system resources. This portion of Boukobza is devoid of any teaching or suggestion of a rate of change of usage of a resource or monitoring a rate of change of usage of a resource.

The second portion of Boukobza cited by the Examiner states that:

> "In this respect, the monitoring process mentioned in the preamble is noteworthy in that the monitoring is configured and then distributed in a filtered way from the management node to autonomous agents, an autonomous agent being installed in each node to be monitored in order, by providing intertype correlation, either to monitor as near as possible the different object types or all of the object of a domain called a global object, defined generically, or to feed back information to be displayed

> through the graphical interface of the management node, each agent comprising a plurality of specific modules specific to the different object types or to a particular domain, each specific module measuring static and dynamic parameters specific to the object type it monitors and collecting these measurements, testing conditions on these parameters relative to predefined thresholds and possibly initiating actions associated with these tested conditions, which parameters, conditions and actions are modifiable by the user of the management node.
>
> Thus, according to the idea of the invention and contrary to all expectation, the use of autonomous agents makes it possible to ensure the proper running of the monitored applications in all of the nodes by means of an autonomous and efficient process, to rapidly feed back the useful information from the nodes to the management node, and to automatically initiate actions on certain conditions or possibly to recommend an action. In this way, in order to ensure effective monitoring of the applications running in the plurality of nodes, the process applied in this case makes it possible to measure specific parameters of each application, to test conditions on these parameters relative to thresholds, and then to execute an action in order to warn of a problem, to reconfigure or to correct. For this reason, measurements are collected in order to perform a later analysis for the purpose of a statistical examination of the monitored activity."
> [Boukobza, Col. 2, Lines 21 – 55].

In other words, this second portion of Boukobza merely states that a monitoring module may measure static and dynamic parameters specific to an object type that is monitors, and describes efficient feedback of monitored information from monitored nodes to a management node. Although the cited portion of Boukobza mentions monitoring of static and dynamic parameters, this portion of Boukobza is devoid of any teaching or suggestion of a rate of change of usage of a resource or monitoring a rate of change of usage of a resource.

Thus, at least for these reasons, the cited portions of Boukobza do not teach or suggest monitoring a rate of change of usage of a resource.

Therefore, since Boukobza fails to teach or suggest a rate of change of usage of a resource, Boukobza must fail to teach or suggest at least the limitations of "assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node," "locally monitoring, at each of the nodes, the rate of change of the usage of said resources of the node," and "reporting to a centralized management station of the network when the rate

of change of the usage of the resources of one of the nodes exceeds a first threshold," as claimed in Appellants' claim 1.

Furthermore, Robinson fails to bridge the substantial gap between Boukobza and Appellants' claim 1.

In general, Robinson discloses a network management framework for monitoring network-level concepts of routes and paths. As disclosed in Robinson, a route and path management system includes a data collector for collecting data from individual network elements, a management server for processing the collected data into manageable route and path objects, and a graphical user interface for allowing a user to manage and monitor routes and paths. (Robinson, Abstract).

Robinson, however, fails to teach or suggest at least the feature of monitoring a rate of change of usage of a resource and, thus, fails to teach or suggest at least the limitations of "assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node," "locally monitoring, at each of the nodes, the rate of change of the usage of said resources of the node," and "reporting to a centralized management station of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold," as claimed in Appellants' claim 1.

Rather, Robinson merely describes a polling rate, which, as stated in Robinson, is a rate at which network elements are polled by a management system. (Robinson, Col. 7, Lines 20-25). A polling rate at which network elements are polled by a management system, as taught in Robinson, is not a rate of change of usage of a resource, as claimed in Appellants' claim 1.

Thus, since Robinson fails to teach or suggest a rate of change of usage of a resource, Robinson must fail to teach or suggest at least the limitations of "assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node," "locally monitoring, at each of the nodes, the rate of change of the usage of said resources of the node," and "reporting to a centralized management station of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold," as claimed in Appellants' claim 1.

Furthermore, in the Response to Arguments section of the Final Office Action, dated July 16, 2008, the Examiner states that "...the monitoring of the performance of a resource on network node against a threshold is analogous to monitoring the rate of change of usage of a resource on a network node. The specification does not disclose a clear description of a resource therefore examiner has made the broadest interpretation of what a resource is and in this case it is CPU utilization rate which is disclosed by Boukobza. Applicant describes rate of change on page 9 in the context as at each time t, a determination is made as to whether the rate of change on the monitored variable at any node exceeds a fixed amount. In the same context Boukobza describes measurement/monitoring of CPU utilization rate against a threshold on col. 6, lines 4 – 14 & col. 14, lines 56 – 58)." (see Final Office Action, Pg. 7).

First, Appellants respectfully disagree with the Examiner's statement that "the monitoring of the performance of a resource on network node against a threshold is analogous to monitoring the rate of change of usage of a resource on a network node." Boukobza merely discloses monitoring an instantaneous value of usage of a resource, not monitoring a rate of change of usage of a resource. For example, using the Examiner's example of a CPU utilization rate parameter, the Examiner fails to appreciate that monitoring the performance of the CPU utilization rate parameter may merely include monitoring an instantaneous value of the CPU utilization rate (as disclosed in Boukobza), and does not necessarily include monitoring the rate at which the CPU utilization rate is changing. For example, an instantaneous value of a CPU utilization rate may be 80%, whereas a rate of change of the CPU utilization rate may indicate that the CPU utilization rate is increasing at a rate of 5% per second (e.g., where the CPU utilization rate increased from a 50% utilization rate to an 80% utilization rate over a 6 minute period). Appellants note that this example is provided only for use in illustrating the clear difference between an instantaneous value of a CPU utilization rate and a rate of change of a CPU utilization rate. Thus, Boukobza fails to teach or suggest a rate of change of usage of a resource, as claimed in Appellants' claim 1.

Second, Appellants respectfully submit that the Examiner's statement that "[t]he specification does not disclose a clear description of a resource therefore examiner has made the broadest interpretation of what a resource is and in this case it is CPU

utilization rate which is disclosed by Boukobza" is irrelevant. As described above, monitoring an instantaneous value of usage of a resource is different than monitoring a rate of change of usage of a resource. In the Examiner's interpretation, the "rate" is part of the definition of the resource being monitored, and, thus, has nothing to do with the rate of change of usage of a resource as claimed in Appellants' claim 1. Using the Examiner's example, Boukobza would have to disclose monitoring the rate of change of CPU utilization rate in order to show monitoring of the rate of change of usage of a resource. Boukobza, however, merely discloses monitoring an instantaneous value of the CPU utilization rate for comparison against a threshold. Thus, the Examiner's argument regarding a broad interpretation of "resource" fails to support a conclusion that Boukobza discloses monitoring the rate of change of usage of a resource. Boukobza is devoid of any teaching or suggestion of monitoring the rate of change of usage of a resource, as claimed in Appellants' claim 1.

Third, Appellants respectfully submit that the Examiner's statement that "[a]pplicant describes rate of change on page 9 in the context as at each time t, a determination is made as to whether the rate of change on the monitored variable at any node exceeds a fixed amount" is misleading. By this statement, the Examiner appears to be implying that Appellants' specification merely discloses comparison of an instantaneous value of a parameter to a threshold. However, as is clearly indicated in the Examiner's statement, the determination in the embodiment cited by the Examiner is whether the rate of change of the resource exceeds a fixed amount. The fact that this determination may be performed periodically does not change the fact that it is a rate of change of usage of the resource that is being periodically compared to a threshold, which is different than monitoring an instantaneous value of usage of a resource as disclosed in Boukobza.

Thus, at least for these reasons, as well as the reasons provided hereinabove, Boukobza fails to teach or suggest a rate of change of usage of a resource, and, thus, fails to teach or suggest at least the limitations of "assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node," "locally monitoring, at each of the nodes, the rate of change of the usage of said resources of the node," and "reporting to a centralized

management station of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold," as claimed in Appellants' claim 1.

As such, since Boukobza and Robinson each fail to teach or suggest a rate of change of usage of a resource, a combination of Boukobza and Robinson must fail to teach or suggest a rate of change of usage of a resource and, therefore, a combination of Boukobza and Robinson must fail to teach or suggest at least the limitations of "assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node," "locally monitoring, at each of the nodes, the rate of change of the usage of said resources of the node," and "reporting to a centralized management station of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold," as claimed in Appellants' claim 1.

Furthermore, since Boukobza and Robinson each fail to teach or suggest monitoring a rate of change of usage of a resource, Boukobza and Robinson, alone or in combination, fail to teach or suggest other limitations of Appellants' claim 1 associated with a rate of change of usage of a resource. Specifically, Boukobza and Robinson, alone or in combination, also must fail to teach or suggest each of the limitations of "determining whether a sum of the currently reported rates of change of usage of node resources, received in response to the poll initiated by the management station, exceeds a second threshold" and "generating an alarm if the sum of the currently reported rates of change of usage of node resources exceeds the second threshold, else updating the time interval," as claimed in Appellants' claim 1.

Thus, Boukobza and Robinson, alone or in combination, fail to teach or suggest Appellants' claim 1, as a whole. Therefore, independent claim 1 is patentable over Boukobza and Robinson and, thus, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claim 6 depends directly from independent claim 1 and recites additional limitations therefor. Therefore, dependent claim 6 also is not obvious over Boukobza in view of Robinson, and, thus, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

Accordingly, Appellants respectfully request that the rejection be withdrawn.

Claim 9

The Examiner has rejected claim 9 under 35 U.S.C. §103(a) as being unpatentable over Boukobza and Robinson. Appellants respectfully traverse the rejection.

Limitations Not Addressed in Current Office Action

Appellants respectfully submit that the Examiner has failed to produce a prima facie case of obviousness of Appellants' claim 9.

According to MPEP §2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art" (*quoting, In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)). In addition, to establish a prima facie case of obviousness the prior art reference (or references when combined) must teach or suggest all elements of the subject claim. *In re Wada*, 2007-3733 (BPAI, Jan. 14, 2008) (*citing, CMFT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed.Cir. 2003)).

In the Final Office Action dated July 16, 2008, the Examiner failed to produce a prima facie case of obviousness of Appellants' claim 9. Specifically, the Examiner failed to provide any arguments or evidence addressing Appellants' claim 9 limitation of "initiating a poll, by the management station, of node resource usage by the nodes of the network in response to a determination that a sum of previously reported values indicative of node resource usage received from reporting nodes plus an upper bound of node resource usage for non-reporting nodes exceeds a threshold." The Examiner did not address this limitation anywhere in the Final Office Action. Rather, the Examiner merely refers to the limitations of Appellants' claim 1 in applying a rejection of Appellants' claims 1 and 9, without regard for the differences between Appellants' claims 1 and 9.

Accordingly, Appellants respectfully submit that the Examiner failed to produce a prima facie case of obviousness of Appellants' claim 9 in the Final Office Action. Therefore, the rejection should be withdrawn.

Limitations Addressed in Previous Office Action

Appellants note that, although the Examiner did not address this limitation in the Final Office Action dated July 16, 2008, the Examiner did address a similar version of

this limitation in an earlier Office Action dated February 8, 2007. The limitation was amended slightly between the earlier Office Action dated February 8, 2007 and the Final Office Action dated July 16, 2008. In the earlier Office Action, Appellants' claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over Mandal et al. (U.S. Patent No. 6,170,009, hereinafter "Mandal") and Robinson et al. (U.S. Patent No. 6,570,867, hereinafter "Robinson"). In the earlier Office Action, the Examiner noted that Mandal (the primary reference relied upon in that earlier Office Action to reject claim 9) failed to teach or suggest this limitation of Appellants' claim 9. The Examiner then cited Robinson, asserting that Robinson discloses this limitation. In Appellants' response dated May 2, 2007 to the Office Action dated February 8, 2007, Appellants noted that Robinson was devoid of any teaching or suggestion of the earlier version of the limitation, which stated: "initiating a poll, by the management station, of node resource usage by the nodes of the network in response to a determination that a sum of previously reported budget values received from reporting nodes plus an upper bound of budget values for non-reporting nodes exceeds a threshold." The arguments from Appellants' response dated May 2, 2007 to the Office Action dated February 8, 2007 follow.

In the earlier Office Action dated February 8, 2007, the Examiner cited specific portions of Robinson (Col. 2, Lines 60-67; Col. 3, Lines 1-33; Col. 5, Lines 3-12; Col. 12, Lines 26-44; and Col. 13, Lines 46-58), asserting that the cited portions of Robinson disclose the earlier version of the limitation, which stated: "initiating a poll, by the management station, of node resource usage by the nodes of the network in response to a determination that a sum of previously reported budget values received from reporting nodes plus an upper bound of budget values for non-reporting nodes exceeds a threshold." The cited portions of Robinson, however, fail to teach or suggest this earlier version of the limitation, or the amended version of the limitation (i.e., the current limitation), which states: "initiating a poll, by the management station, of node resource usage by the nodes of the network in response to a determination that a sum of previously reported values indicative of node resource usage received from reporting nodes plus an upper bound of node resource usage for non-reporting nodes exceeds a threshold."

Rather, the cited portions of Robinson merely disclose various other teachings. With respect to the portions of Robinson cited by the Examiner, Col. 2, Lines 60-67 of

Robinson merely includes general statements indicating that routes and paths in a network provide managers with capabilities including troubleshooting, performance monitoring service level planning, and path provisioning. Similarly, for example, Col. 3, Lines 1-33 of Robinson merely includes general statements describing the advantages of using a data collector for collecting routing information from individual network devices versus device level management applications. Furthermore, Col. 3, Lines 1-33 of Robinson describes functions supported by the system of Robinson, such as real-time monitoring and reporting of device-level performance, storing and providing route history and path-level performance history, and raising and clearing of QoS alarms. Moreover, Col. 5, Lines 3-12 of Robinson merely includes general statements regarding the configuration of an IP network.

In other words, these portions of Robinson described above are completely devoid of any teaching or suggestion of initiating a poll of node resource usage by the nodes of the network in response to a determination that a sum of previously reported values indicative of node resource usage received from reporting nodes plus an upper bound of node resource usage for non-reporting nodes exceeds a threshold, as claimed in Appellants' claim 9. These portions of Robinson are devoid of any teaching or suggestion of any sums, previously reported values, values indicative of node resource usage, upper bounds, reporting and non-reporting nodes, or any of the other features of this limitation of Appellants' claim 9.

Furthermore, with respect to other portions of Robinson cited by the Examiner in the earlier Office Action dated February 8, 2007 (namely, Col. 12, Lines 26-44 and Col. 13, Lines 46-58), Robinson merely describes simple calculations and comparisons that are completely devoid of any teaching or suggestion of previously reported values indicative of node resource usage received from reporting nodes, an upper bound of node resource usage for non-reporting nodes, a sum of previously reported values indicative of node resource usage received from reporting nodes and an upper bound of node resource usage for non-reporting nodes, or a determination that such a sum exceeds a threshold.

More specifically, with respect to Col. 12, Lines 26-44, Robinson states that objects polled are compared to threshold data contained in a path queue and performance of each path listed therein is calculated. The comparison of polled objects to threshold

data and calculation of path performance, as taught in Robinson, simply does not teach or suggest the sum claimed in Appellants' claim 9. Furthermore, in the cited section of Robinson, Robinson describes forwarding of paths for which performance was calculated to route performance logic, which compares the obtained paths with old identification data in the route queue. The comparison of paths with information in a path queue, as taught in Robinson, simply does not teach or suggest the sum claimed in Appellants' claim 9. As such, the cited portion of Robinson clearly fails to teach or suggest at least the limitation of "initiating a poll, by the management station, of node resource usage by the nodes of the network in response to a determination that a sum of previously reported values indicative of node resource usage received from reporting nodes plus an upper bound of node resource usage for non-reporting nodes exceeds a threshold," as claimed in Appellants' claim 9.

Furthermore, with respect to Col. 13, Lines 46-58, Robinson states that performance of a specified route, and each of the associated paths and objects, is measured against appropriate performance thresholds located in the threshold crossing logic. The performance of a route, path, or object, as taught in Robinson, simply does not teach or suggest the sum claimed in Appellants' claim 9. Furthermore, in the cited section of Robinson, Robinson further states that once threshold calculations are completed, the historical performance monitoring process is repeated to obtain new performance values which are permanently stored and checked against threshold levels. In other words, Robinson merely includes general statements about threshold calculations, historical performance monitoring, and comparison of performance values against thresholds. Such general statements of Robinson simply do not teach or suggest the sum claimed in Appellants' claim 9. As such, the cited portion of Robinson clearly fails to teach or suggest at least the limitation of "initiating a poll, by the management station, of node resource usage by the nodes of the network in response to a determination that a sum of previously reported values indicative of node resource usage received from reporting nodes plus an upper bound of node resource usage for non-reporting nodes exceeds a threshold," as claimed in Appellants' claim 9.

Thus, at least for these reasons, the previous rejection applied by the Examiner in the Office Action dated February 8, 2007 failed to establish obviousness of the earlier

version of Appellants' claim 9 and, thus, would fail to establish obviousness of the current version of Appellants' claim 9. Therefore, the rejection should be withdrawn.

Limitations Not Disclosed by References Cited in Current Office Action

Boukobza and Robinson, alone or in combination, fail to teach or suggest Appellants' claim 9, as a whole.

Namely, Boukobza and Robinson, alone or in combination, fail to teach or suggest at least the limitation of "initiating a poll, by the management station, of node resource usage by the nodes of the network in response to a determination that a sum of previously reported values indicative of node resource usage received from reporting nodes *plus* an upper bound of node resource usage for non-reporting nodes exceeds a threshold," as claimed in Appellants' claim 9.

Thus, Boukobza and Robinson, alone or in combination, fail to teach or suggest Appellants' claim 9, as a whole.

Conclusion

As such, independent claim 9 fully satisfies the requirements of 35 U.S.C. §103 and is patentable over Boukobza and Robinson.

Accordingly, Appellants respectfully request that the rejection be withdrawn.

Claim 10

The Examiner has rejected claim 10 under 35 U.S.C. §103(a) as being unpatentable over Boukobza and Robinson. Appellants respectfully traverse the rejection.

Limitations Not Addressed in Final Office Action

Appellants respectfully submit that the Examiner has failed to produce a prima facie case of obviousness of Appellants' claim 10.

According to MPEP §2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art" (*quoting, In re Wilson*, 424

F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)). In addition, to establish a prima facie case of obviousness the prior art reference (or references when combined) must teach or suggest all elements of the subject claim. *In re Wada*, 2007-3733 (BPAI, Jan. 14, 2008) (*citing*, *CMFT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed.Cir. 2003)).

In the Final Office Action dated July 16, 2008, the Examiner has failed to provide any arguments or evidence addressing Appellants' claim 10 limitation of "wherein said rate of change of usage of said node resource is determined using a variable time interval comprising a difference between a current time and a time at which the node was last polled by the management station." The Examiner simply does not address this limitation anywhere in the Office Action. Rather, the Examiner merely refers to the limitations of Appellants' claim 1 in applying a rejection of Appellants' claims 1 and 10, without regard for the differences between Appellants' claims 1 and 10.

Accordingly, Appellants respectfully submit that the Examiner has failed to produce a prima facie case of obviousness of Appellants' claim 10.

Limitations Not Disclosed by Cited References

Appellants respectfully submit that Boukobza and Robinson, alone or in combination, fail to teach or suggest Appellants' claim 10, as a whole.

First, Boukobza and Robinson, alone or in combination, fail to teach or suggest a variable time interval comprising a difference between a current time and a time at which the node was last polled by the management station. Thus, Boukobza and Robinson, alone or in combination, must also fail to teach or suggest at least the limitation that "said rate of change of usage of said node resource is determined using a variable time interval comprising a difference between a current time and a time at which the node was last polled by the management station," as claimed in Appellants' claim 10.

Second, as described herein with respect to claim 1, Boukobza and Robinson, alone or in combination, fail to teach or suggest a rate of change of usage of a resource. Thus, at least for the reasons described hereinabove with respect to claim 1, Appellants respectfully submit that Boukobza and Robinson, alone or in combination, fail to teach or suggest at least the limitation of "reporting to a management station of the network when

a rate of change of usage of said node resource exceeds the local threshold as determined using local monitoring of the node resource," as claimed in Appellants' claim 10.

Thus, at least for these reasons, Boukobza and Robinson, alone or in combination, fail to teach or suggest Appellants' claim 10, as a whole.

Conclusion

As such, independent claim 10 fully satisfies the requirements of 35 U.S.C. §103 and is patentable over Boukobza and Robinson.

Accordingly, Appellants respectfully request that the rejection be withdrawn.

Claims 7, 8, 11, 12 and 14

Claims 7 and 14

The Examiner has rejected claims 7 and 14 under 35 U.S.C. 103(a) as being unpatentable over Maruyama and Robinson. Appellants respectfully traverse the rejection.

The Examiner bears the initial burden of establishing a prima facie case of obviousness. See MPEP § 2141. Establishing a prima facie case of obviousness begins with first resolving the factual inquiries of Graham v. John Deere Co. 383 U.S. 1 (1966). The factual inquiries are as follows:

(A) determining the scope and content of the prior art;

(B) ascertaining the differences between the claimed invention and the prior art;

(C) resolving the level of ordinary skill in the art; and

(D) considering any objective indicia of nonobviousness.

Once the Graham factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art. The key to supporting a rejection under 35 U.S.C. §103 is the clear articulation of the reasons why the claimed invention would have been obvious. The analysis supporting such a rejection must be explicit. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated

reasoning with some rational underpinning to support the legal conclusion of obviousness." In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006), cited with approval in KSR Int'l Co. v. Teleflex, Inc., 126 S. Ct. 2965 (2006); see also MPEP §2141.

The Final Office Action failed to establish a *prima facie* case of obviousness, because the combination of Maruyama and Robinson fails to teach or suggest all of the limitations of Appellants' claim 7. Namely, the combination of Maruyama and Robinson fails to teach or suggest at least the feature of a rate of change of usage of a resource and, thus, fails to teach or suggest at least the limitations of "(a) monitoring usage of the resource in a node to determine when a rate of change of the usage exceeds a first predetermined threshold" and "(b) reporting to a management station of the network when the rate of change of the usage exceeds said first predetermined threshold," as claimed in Appellants' claim 7.

Maruyama discloses a system for supporting (min,max) based Service Level Agreements (SLAs) on outbound bandwidth usage for a plurality of customers whose applications (e.g., web sites) are hosted by a server farm that consists of a very large number of servers. The system employs a feedback system that enforces the outbound link bandwidth SLAs by regulating the inbound traffic to a server or server farm. Inbound traffic is admitted to servers using a rate denoted as Rt(i,j), which is the amount of the i^{th} customer's j^{th} type of traffic that can be admitted within a service cycle time to servers which support the i^{th} customer. A centralized device computes Rt(i,j) based on the history of admitted inbound traffic to servers, the history of generated outbound traffic from servers, and the SLAs of various customers. The Rt(i,j) value is then relayed to one or more inbound traffic limiters that regulate the inbound traffic using the rates Rt(i,j) in a given service cycle time. (Maruyama, Abstract).

Maruyama, however, fails to teach or suggest Appellants' claim 7, as a whole. Namely, Maruyama fails to teach or suggest at least the limitations of "(a) monitoring usage of the resource in a node to determine when a rate of change of the usage exceeds a first predetermined threshold" and "(b) reporting to a management station of the network when the rate of change of the usage exceeds said first predetermined threshold," as claimed in Appellants' claim 7.

Rather, Maruyama merely discloses computation of a traffic admission rate Rt(i,j) which, as described in Maruyama, is the amount of traffic that can be admitted to a server within a service cycle time.

Appellants submit that computation of a traffic admission rate, as disclosed in Maruyama, does not teach or suggest monitoring usage of a resource in a node, as claimed in Appellants' claim 7.

Appellants further submit that, even assuming arguendo that computation of a traffic admission rate as described in Maruyama could be interpreted as disclosing monitoring usage of a resource on a node, Maruyama would still fail to teach or suggest computing a rate of change of the traffic admission rate. Rather, Maruyama merely discloses computing an instantaneous value of the traffic admission rate. An instantaneous value of a traffic admission rate is different than a rate of change of a traffic admission rate. For example, an instantaneous value of a traffic admission rate may be 80%, whereas a rate of change of the traffic admission rate may indicate that the traffic admission rate is increasing at a rate of 5% per minute (e.g., where the traffic admission rate increased from a 50% admission rate to an 80% admission rate over a 6 minute period). Appellants note that this example is provided only for use in illustrating the clear difference between an instantaneous value of a traffic admission rate and a rate of change of a traffic admission rate. Thus, since Maruyama would still fail to teach or suggest a rate of change of the traffic admission rate, Maruyama fails to teach or suggest a rate of change of usage of a resource, as claimed in Appellants' claim 7.

In the Final Office Action dated July 16, 2008, the Examiner cites specific portions of Maruyama (namely, Col. 3, Lines 52 – 67; Col. 4, Line 29 – Col. 5, Line 35; Col. 8, Line 66 – Col. 9, Line 37), asserting that the cited portions of Maruyama disclose Appellants' limitations of "(a) monitoring usage of the resource in a node to determine when a rate of change of the usage exceeds a first predetermined threshold" and "(b) reporting to a management station of the network when the rate of change of the usage exceeds said first predetermined threshold." Appellants respectfully disagree.

The first portion of Maruyama cited by the Examiner indicates that computation of the allowable traffic rate Rt(i,j) may be controlled via an external means, that monitoring and traffic limiting functions can be distributed to the individual server level,

and that inbound traffic regulation may be used to alleviate congestion of server farm resources. (Maruyama, Col. 3, Lines 52 – 67). This portion of Maruyama is devoid of any teaching or suggestion of a rate of change of usage of a resource.

The second portion of Maruyama cited by the Examiner describes a system environment in which traffic through an Internet server farm 10 can be regulated with a bandwidth control system. Additionally, this portion of Maruyama includes a table listing a number of different types of traffic rates which may be computed, such as the allowable traffic rate for the j^{th} customer's j^{th} type traffic at the j^{th} server, the i^{th} customer's j^{th} type outbound traffic from the j^{th} server, and so forth. Additionally, this portion of Maruyama describes additional details of an inbound traffic scheduler that is used to monitor inbound traffic for computing inbound traffic target rates. (Maruyama, Col. 4, Line 29 – Col. 5, Line 35). This portion of Maruyama, however, is devoid of any teaching or suggestion of a rate of change of usage of a resource.

The third portion of Maruyama cited by the Examiner is claim 1 of Maruyama, which claims a system for controlling and managing Internet server farm traffic, where the system includes "means for collecting the admitted rate (Ra) of inbound traffic for each customer traffic type (i,j); means for collecting the rejected rate (Rr) of inbound traffic for each customer traffic type (i,j); means for collecting the outbound traffic (B) for each customer traffic type (i,j); means for computing an expected bandwidth usage (b) per TCP connection request for each customer traffic type (i,j); means for using the expected bandwidth usage (b) to compute the target rate (Rt) for each customer traffic type (i,j) that supports the outbound bandwidth usage-based service level agreements of form (Bmin,Bmax); limiter means for admitting inbound traffic based on the target rate (Rt), for rejecting inbound traffic that exceeds the target rate (Rt), and for tracking the volume of admitted inbound traffic (Ra) and the volume of rejected inbound traffic (Rr) for each customer traffic type (i,j); means for relaying the target rates (Rt) for inbound traffic to the limiter means; and means for dispatching the admitted inbound traffic (Ra) to the servers." (Maruyama, Col. 8, Line 66 – Col. 9, Line 37). Although this portion of Maruyama discloses a list of different parameters which may be computed, Maruyama is devoid of any teaching or suggestion of a rate of change of usage of a resource.

Maruyama is devoid of any teaching or suggestion of any rate of change of usage

of a resource and, thus, fails to teach or suggest monitoring usage of a resource to determine when a rate of change of usage of the resource exceeds a threshold, or reporting to a management station of a network when the rate of change of the usage of the resource exceeds a threshold, as claimed in Appellants' claim 7.

Thus, Maruyama fails to teach or suggest at least the limitations of "(a) monitoring usage of the resource in a node to determine when a rate of change of the usage exceeds a first predetermined threshold" and "(b) reporting to a management station of the network when the rate of change of the usage exceeds said first predetermined threshold," as claimed in Appellants' claim 7.

Furthermore, Robinson fails to bridge the substantial gap between Maruyama and Appellants' claim 7.

Robinson discloses a network management framework for monitoring network-level concepts of routes and paths. As disclosed in Robinson, a route and path management system includes a data collector for collecting data from individual network elements, a management server for processing the collected data into manageable route and path objects, and a graphical user interface for allowing a user to manage and monitor routes and paths. (Robinson, Abstract).

Robinson, however, fails to teach or suggest at least the feature of a rate of change of usage of a resource and, thus, fails to teach or suggest at least the limitations of "(a) monitoring usage of the resource in a node to determine when a rate of change of the usage exceeds a first predetermined threshold" and "(b) reporting to a management station of the network when the rate of change of the usage exceeds said first predetermined threshold," as claimed in Appellants' claim 7.

Rather, Robinson merely describes a polling rate, which, as stated in Robinson, is a rate at which network elements are polled by a management system. (Robinson, Col. 7, Lines 20-25). A polling rate at which network elements are polled by a management system, as taught in Robinson, is not a rate of change of usage of a resource, as claimed in Appellants' claim 7.

Thus, since Robinson fails to teach or suggest a rate of change of usage of a resource, Robinson must fail to teach or suggest at least the limitations of "(a) monitoring usage of the resource in a node to determine when a rate of change of the usage exceeds a

first predetermined threshold" and "(b) reporting to a management station of the network when the rate of change of the usage exceeds said first predetermined threshold," as claimed in Appellants' claim 7.

As such, since Maruyama and Robinson each fail to teach or suggest a rate of change of usage of a resource, a combination of Maruyama and Robinson must fail to teach or suggest a rate of change of usage of a resource and, therefore, a combination of Maruyama and Robinson must fail to teach or suggest at least the limitations of "(a) monitoring usage of the resource in a node to determine when a rate of change of the usage exceeds a first predetermined threshold" and "(b) reporting to a management station of the network when the rate of change of the usage exceeds said first predetermined threshold," as claimed in Appellants' claim 7.

Thus, Maruyama and Robinson, alone or in combination, fail to teach or suggest Appellants' claim 7, as a whole. Therefore, independent claim 7 is patentable over Maruyama and Robinson and, thus, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claim 14 depends directly from independent claim 7 and recites additional limitations therefor. Therefore, dependent claim 14 also is not obvious over Maruyama and Robinson, and, thus, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

Accordingly, Appellants respectfully request that the rejection be withdrawn.

Claims 8, 11, and 12

The Examiner has rejected claims 8, 11, and 12 under 35 U.S.C. 103(a) as being unpatentable over Maruyama and Robinson. Appellants respectfully traverse the rejection.

The Examiner bears the initial burden of establishing a prima facie case of obviousness. See MPEP § 2141. Establishing a prima facie case of obviousness begins with first resolving the factual inquiries of Graham v. John Deere Co. 383 U.S. 1 (1966). The factual inquiries are as follows:

(A) determining the scope and content of the prior art;

(B) ascertaining the differences between the claimed invention and the prior art;

(C) resolving the level of ordinary skill in the art; and

(D) considering any objective indicia of nonobviousness.

Once the Graham factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art. The key to supporting a rejection under 35 U.S.C. §103 is the clear articulation of the reasons why the claimed invention would have been obvious. The analysis supporting such a rejection must be explicit. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006), cited with approval in KSR Int'l Co. v. Teleflex, Inc., 126 S. Ct. 2965 (2006); see also MPEP §2141.

The Final Office Action failed to establish a *prima facie* case of obviousness, because the combination of Maruyama and Robinson fails to teach or suggest all of the limitations of Appellants' claim 8. Namely, the combination of Maruyama and Robinson fails to teach or suggest at least the feature of a rate of change of usage of a resource and, thus, fails to teach or suggest at least the limitation of "asynchronous reporting of an event to a management station of the network when a rate of change of a usage of at least one resource of said resources in any of said nodes deviates from a prescribed norm," as claimed in Appellants' claim 8.

As described hereinabove with respect to claim 7, Maruyama discloses a system for supporting (min,max) based Service Level Agreements (SLAs) on outbound bandwidth usage for a plurality of customers whose applications (e.g., web sites) are hosted by a server farm that consists of a very large number of servers. The system employs a feedback system that enforces the outbound link bandwidth SLAs by regulating the inbound traffic to a server or server farm. Inbound traffic is admitted to servers using a rate denoted as Rt(i,j), which is the amount of the i^{th} customer's j^{th} type of traffic that can be admitted within a service cycle time to servers which support the i^{th} customer. A centralized device computes Rt(i,j) based on the history of admitted inbound traffic to servers, the history of generated outbound traffic from servers, and the SLAs of various customers. The Rt(i,j) value is then relayed to one or more inbound traffic limiters that regulate the inbound traffic using the rates Rt(i,j) in a given service cycle time. (Maruyama, Abstract).

Maruyama, however, at least for the reasons described hereinabove with respect to claim 7, fails to teach or suggest Appellants' claim 8, as a whole. Namely, Maruyama fails to teach or suggest at least the limitation of "asynchronous reporting of an event to a management station of the network when a rate of change of a usage of at least one resource of said resources in any of said nodes deviates from a prescribed norm," as claimed in Appellants' claim 8.

Rather, Maruyama merely discloses computation of a traffic admission rate $R_t(i,j)$ which, as described in Maruyama, is the amount of traffic that can be admitted to a server within a service cycle time.

As noted hereinabove with respect to claim 7, Appellants submit that computation of a traffic admission rate, as disclosed in Maruyama, does not teach or suggest monitoring usage of a resource in a node, as claimed in Appellants' claim 8.

As further noted hereinabove with respect to claim 7, Appellants submit that, even assuming arguendo that computation of a traffic admission rate as described in Maruyama could be interpreted as disclosing monitoring usage of a resource on a node, Maruyama would still fail to teach or suggest monitoring a rate of change of the traffic admission rate. Rather, Maruyama merely discloses computing an instantaneous value of the traffic admission rate. An instantaneous value of a traffic admission rate is different than a rate of change of a traffic admission rate. For example, an instantaneous value of a traffic admission rate may be 80%, whereas a rate of change of the traffic admission rate may indicate that the traffic admission rate is increasing at a rate of 5% per minute (e.g., where the traffic admission rate increased from a 50% admission rate to an 80% admission rate over a 7 minute period). Appellants note that this example is provided only for use in illustrating the clear difference between an instantaneous value of a traffic admission rate and a rate of change of a traffic admission rate. Thus, since Maruyama would still fail to teach or suggest a rate of change of the traffic admission rate, Maruyama fails to teach or suggest a rate of change of usage of a resource, as claimed in Appellants' claim 8.

In the Final Office Action dated July 16, 2008, the Examiner cites specific portions of Maruyama (namely, Col. 3, Lines 52 – 67; Col. 4, Line 29 – Col. 5, Line 35; Col. 8, Line 66 – Col. 9, Line 37), asserting that the cited portions of Maruyama

disclosed Appellants' limitation of "asynchronous reporting of an event to a management station of the network when a rate of change of a usage of at least one resource of said resources in any of said nodes deviates from a prescribed norm." Appellants respectfully disagree.

As described hereinabove with respect to claim 7, each of these cited portions of Maruyama is devoid of any teaching or suggestion of a rate of change of usage of a resource and, thus, fails to teach or suggest asynchronous reporting of an event to a management station of a network when a rate of change of a usage of at least one resource deviates from a prescribed norm, as claimed in Appellants' claim 8.

Thus, Maruyama fails to teach or suggest at least the limitation of "asynchronous reporting of an event to a management station of the network when a rate of change of a usage of at least one resource of said resources in any of said nodes deviates from a prescribed norm," as claimed in Appellants' claim 8.

Furthermore, Robinson fails to bridge the substantial gap between Maruyama and Appellants' claim 8.

Robinson discloses a network management framework for monitoring network-level concepts of routes and paths. As disclosed in Robinson, a route and path management system includes a data collector for collecting data from individual network elements, a management server for processing the collected data into manageable route and path objects, and a graphical user interface for allowing a user to manage and monitor routes and paths. (Robinson, Abstract).

Robinson, however, fails to teach or suggest at least the feature of a rate of change of usage of a resource. Thus, Robinson fails to teach or suggest at least the limitation of "asynchronous reporting of an event to a management station of the network when a rate of change of a usage of at least one resource of said resources in any of said nodes deviates from a prescribed norm," as claimed in Appellants' claim 8.

Rather, Robinson merely describes a polling rate, which, as stated in Robinson, is a rate at which network elements are polled by a management system. (Robinson, Col. 7, Lines 20-25). A polling rate at which network elements are polled by a management system, as taught in Robinson, is not a rate of change of usage of a resource, as claimed in Appellants' claim 8.

Thus, since Robinson fails to teach or suggest a rate of change of usage of a resource, Robinson must fail to teach or suggest at least the limitation of "asynchronous reporting of an event to a management station of the network when a rate of change of a usage of at least one resource of said resources in any of said nodes deviates from a prescribed norm," as claimed in Appellants' claim 8.

As such, since Maruyama and Robinson each fail to teach or suggest a rate of change of usage of a resource, a combination of Maruyama and Robinson must fail to teach or suggest a rate of change of usage of a resource and, therefore, a combination of Maruyama and Robinson must fail to teach or suggest at least the limitation of "asynchronous reporting of an event to a management station of the network when a rate of change of a usage of at least one resource of said resources in any of said nodes deviates from a prescribed norm," as claimed in Appellants' claim8.

Thus, Maruyama and Robinson, alone or in combination, fail to teach or suggest Appellants' claim 8, as a whole. Therefore, independent claim 8 is patentable over Maruyama and Robinson and, thus, fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, claims 11 and 12 depend directly from independent claim 8 and recites additional limitations therefor. Therefore, dependent claims 11 and 12 also are not obvious over Maruyama and Robinson, and, thus, fully satisfies the requirements of 35 U.S.C. §103 and are patentable thereunder.

Accordingly, Appellants respectfully request that the rejection be withdrawn.

Conclusion

Thus, Appellants submit that all of the claims presently in the application are allowable under the provisions of 35 U.S.C. 103.

For the reasons advanced above, Appellants respectfully urge that the rejections of claims 1, 6-12 and 14 are improper. Reversal of the rejections of the Final Office Action is respectfully requested.

Respectfully submitted,

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Eamon J. Wall
Registration No. 39,414
Patterson & Sheridan, L.L.P.
595 Shrewsbury Ave. Suite 100
Shrewsbury, NJ 07702
Telephone: (732) 530-9404
Facsimile: (732) 530-9808
Attorney for Appellant

CLAIMS APPENDIX

LISTING OF CLAIMS:

1. (previously presented) A method for monitoring usage of resources allocated to a plurality of nodes of a network, comprising the steps of:

assigning a parameter to each of a plurality of nodes of the network, wherein each parameter is indicative of a rate of change of usage of said resources of the node;

locally monitoring, at each of the nodes, the rate of change of the usage of said resources of the node;

reporting to a centralized management station of the network when the rate of change of the usage of the resources of one of the nodes exceeds a first threshold;

initiating a poll of resources of nodes of the network by the centralized management station in response to reporting from the node or a time interval being exceeded;

determining whether a sum of the currently reported rates of change of usage of node resources, received in response to the poll initiated by the management station, exceeds a second threshold; and

generating an alarm if the sum of the currently reported rates of change of usage of node resources exceeds the second threshold, else updating the time interval.

2-5. (cancelled)

6. (previously presented) The method of claim 1, further including the step of adjusting the usage of the resources at one or more of said nodes.

7. (previously presented) A method for monitoring usage of a resource in nodes of a network, comprising the steps of:

(a) monitoring usage of the resource in a node to determine when a rate of change of the usage exceeds a first predetermined threshold;

(b) reporting to a management station of the network when the rate of change of

the usage exceeds said first predetermined threshold; and

(c) initiating a poll of resources in the nodes of the network by the management station in response to reporting from the node or a time interval being exceeded.

8. (previously presented) A method for monitoring usage of resources in nodes of a network, comprising the steps of:

asynchronous reporting of an event to a management station of the network when a rate of change of a usage of at least one resource of said resources in any of said nodes deviates from a prescribed norm; and

periodic polling of said nodes in accordance with a polling interval, and aperiodic polling of said nodes in response to reporting of said event, wherein a tunable parameter is adjusted in response to the usage.

9. (previously presented) A method for managing a global resource of a network in order to reduce the amount of monitoring related traffic, comprising the steps of:

assigning a local threshold to each of a plurality of node resources of a respective plurality of nodes of the network;

reporting to a management station of the network when a value indicative of node resource usage exceeds the assigned local threshold as determined using local monitoring of the node resource;

initiating a poll, by the management station, of node resource usage by the nodes of the network in response to a determination that a sum of previously reported values indicative of node resource usage received from reporting nodes plus an upper bound of node resource usage for non-reporting nodes exceeds a threshold; and

generating an alarm if the sum of the currently reported values indicative of node resource usage, received in response to the poll initiated by the management station, exceeds the threshold.

10. (previously presented) A method for managing a global resource of a network in order to reduce the amount of monitoring related traffic, comprising the steps

of:

assigning a local threshold to each of a plurality of node resources of a respective plurality of nodes of the network;

reporting to a management station of the network when a rate of change of usage of said node resource exceeds the local threshold as determined using local monitoring of the node resource, wherein said rate of change of usage of said node resource is determined using a variable time interval comprising a difference between a current time and a time at which the node was last polled by the management station;

initiating a poll, by the management station, of the node resource usage of the nodes of the network in response to receiving reporting from one of the nodes or a time interval being exceeded;

determining whether a sum of the currently reported rates of change of usage of node resources, received in response to the poll initiated by the management station, exceeds a threshold; and

generating an alarm if the sum of the currently reported rates of change of usage of node resources exceeds the threshold.

11. (previously presented) The method defined in claim 8 wherein said nodes are selected from the group consisting of routers, switches, bridges, and firewall devices.

12. (previously presented) The method defined in claim 8 wherein said nodes are selected from the group consisting of servers, hosts, and layer 4-7 switches.

13. (cancelled)

14. (previously presented) The method of claim 7, further comprising:

(d) summing all the reported rate of change of the usage of the resources; and

(e) generating an alarm if the sum exceeds a second threshold, else updating the time interval.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None